

EN200 NAVAL ENGINEERING I

COURSE OBJECTIVES

CHAPTER 1

1. ENGINEERING FUNDAMENTALS

1. Familiarize yourself with engineering plotting, sketching, and graphing techniques so you can use them effectively throughout the remainder of the course.
2. Be able to explain what dependent and independent variables are, notations used, and how relationships are developed between them.
3. Familiarize yourself with the concepts of integration and differentiation as discussed in this chapter. Be sure to understand what the area under a curve and the instantaneous slope of a curve indicate.
4. Familiarize yourself with the three commonly used unit systems in engineering and know which one is used in Naval Engineering I.
5. Understand what units analysis is and be able to use units effectively in doing calculations and in checking your final answer for correctness.
6. Understand the “ruled lines method” and be sure to use it throughout the course.
7. Understand significant figures, exact numbers and the rules used in calculations involving these.
8. Obtain a working knowledge of scalars, vectors, and symbols used in representing them as related to this course.
9. Be able to name and describe the 6 degrees of freedom of a floating ship. Remember which directions on a ship are assigned the X, Y, and Z conventions and where the origin of the X, Y, and Z axis is typically located for convenience in Naval Engineering calculations. Be able to remember the conventions that distances port of the centerline and angles of list to the port side are assigned as negative for graphing purposes.
10. Be able to discuss the following terms as they relate to Naval Engineering. (longitudinal direction, transverse direction, athwartships, midships, amidships, draft, mean draft, displacement, resultant weight, resultant buoyant force, centerline, baseline, keel, heel, roll, list, trim)
11. Be able to state how a moment is created, the tendencies of motion it causes, how

to calculate it's magnitude, and state it's units in the "pound - slug" system.

12. Be able to state how a couple is created, the tendencies of motion it causes, how to calculate it's magnitude, and state it's units in the "pound - slug" system.
13. Be able to state the necessary and sufficient conditions for static equilibrium.
14. Understand hydrostatic pressure. Understand the relationship between a distributed force and a resultant force. Be able to explain why it is desirable to use resultant forces in the modeling of physical processes.
15. Know how to do linear interpolation to find a number that is between values in a table.
16. Understand the concept of mathematical moments.
17. Be able to show how to find a weighted average and explain what a weighted average is.